Micropilina tangaroa, a New Monoplacophoran (Mollusca) from Northern New Zealand

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ABSTRACT

Micropilina tangaroa n.sp., based on a single shell from the Three Kings Rise, northern New Zealand, is the first record of the class Monoplacophora from the western Pacific.

Key words: Monoplacophora, New Zealand, *Micropilina*.

INTRODUCTION

Since the discovery of *Neopilina galathea* in 1952 (Lemche, 1957), 14 Recent species have been added to the class Monoplacophora (Lemche, 1957; Clarke & Menzies, 1959; Menzies & Layton, 1963; Tebble, 1967; Menzies, 1968; Rokop, 1972; McLean, 1979; Moskalev *et al.*, 1983; Bouchet *et al.*, 1983; Warén, 1988, 1989; Warén & Bouchet, 1990). These species are based on material from off Hawaii, the eastern Pacific margin, the western and northern Atlantic, and the Gulf of Aden. The present record extends the range to the southwestern Pacific (figure 1). Recent monoplacophorans are mainly confined to bathyal and abyssal depths, though one species lives at 174–388 m depth off southern California (McLean, 1979). Monoplacophoran morphology and anatomy have been discussed in detail by Lemche and Wingstrand (1959) and Wingstrand (1985), while Menzies *et al.* (1959) and Tendal (1985) have discussed their ecology and diet.

Class **Monoplacophora** Odhner *in* Wenz, 1940

Genus *Micropilina* Warén, 1989:2

Type species: *Micropilina minuta* Warén, 1989, by original designation; Recent, northern Atlantic.

Remarks: Suprageneric classification of the Monoplacophora has been drastically modified by Moskalev *et al.* (1983) and Starobogatov and Moskalev (1987). These authors placed the 11 Recent species then known into six families and three superfamilies. Unfortunately the anatomy of *Micropilina* is unknown, so it cannot be placed in this hierarchial framework. Despite the lack of supportive anatomical data, *Micropilina* species are undoubtedly monoplacophorans, since their shells exhibit the multiple muscle attachment scars characteristic of many species of the class (figure 3) (Lemche & Wingstrand, 1959; Wingstrand, 1985). The class name is generally credited to Wenz (*in* Knight, 1952), but, as indicated by Warén (1988), it was first introduced by Odhner (*in* Wenz, 1940).

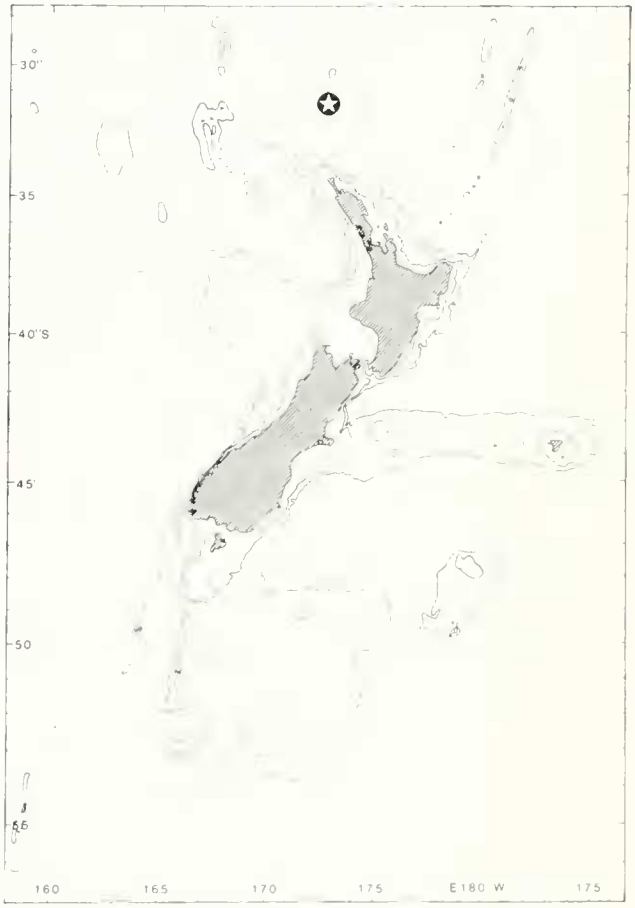

Figure 1. Map of New Zealand showing type locality (star) for *Micropilina tangaroa* new species. 200 and 1000 meter contours indicated

Figures 2–5. *Micropilina tangaroa* new species. **2.** Left lateral, **3.** ventral, and **4.** dorsal views of holotype (length = 1.50 mm). **5.** Detail of teleoconch sculpture (800 ×).

Micropilina tangaroa new species
(figures 2–5)

Description: Shell (holotype) 1.50 mm long, thin, strongly arched capuliform; apertural margin regularly ovate, concave from side to side; rounded apex projecting slightly beyond anterior apertural margin, opaque white. Shell wall apparently lamellar throughout, presumably arganonite. Apical area convex, 0.17 mm long, defined by fine concentric ridge, surface slightly etched. Exterior surface at 0.17–0.30 mm shell length essentially smooth apart from few, fine raised concentric growth lines. Thereafter sculptured with strong concentric ridges and finer radial riblets. Concentric ridges close, sharply defined, broader than high, summits weakly convex, interspaces about half width of each ridge, weaker and less sharply defined beside apertural margin. Radial riblets confined to interspaces of concentric ridges, rounded, interspaces slightly narrower than each riblet, each riblet about as wide as interspace of each concentric ridge. Interior surface encircled by complex series of muscle attachment scars, of which at least 15 pairs are discernable, through precise number of muscle attachment points uncertain, especially over anterior half. Animal unknown.

Type material: Holotype New Zealand Oceanographic Institute, Wellington H.555 (length 1.50 mm, width 0.88 mm, height 0.50 mm).

Type locality: (Figure 1) Station U.602, 31°30.7′S, 172°49.8′E, northern Three Kings Rise, northern New Zealand, dead 1,216–1,385 m, rocky substratum with pumice, carbonate sand and shell, February 9, 1988, R.V. *Rapuhia*.

Etymology: The species is named for the Maori sea god Tangaroa.

Discussion: Compared with the north Atlantic species *Micropilina minuta* Warén, 1989, which it most resembles, *M. tangaroa* differs in being larger (length 1.50 mm compared with 1.06 mm), and in having concentric ridges that are much larger both in actual size and in size relative to the size of the radial riblets. Judging from the increasing curvature of the posterior and lateral slopes and the change (presumably senescent) in sculpture beside the apertural margin, the holotype of *M. tangaroa* is evidently an adult. Apical pits recorded by Warén (1988, 1989) were not observed in the present specimen, which is long dead, locally stained by manganese deposition, and slightly etched.

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